

DESCRIPTION

This manual aims to illustrate how to use the EP3001 Evaluation Board ("EP3001 EVB").

The EP3001 EVB is a constant-frequency buck regulator, using the EP3001, 1.5MHz, 600mA Synchronous Step-down Converter. The EP3001 EVB is available for input voltage range from 2.5V to 5.5V. The EP3001 EVB is capable of delivering up to 600mA of output current at minimum input voltage of 3V, or even up to 800mA under certain specific condition.

This manual includes Quick Start for using the EP3001 EVB, Demonstration Circuit, PCB Layout and Bill of Material for the EP3001 EVB.

QUICK START

The EP3001 EVB is easy to set up to evaluate the performance of the EP3001. For proper measurement equipment setup, please follow the explanation below:

Fixed Voltage Type

1. Connect the power supply to the Vin and GND terminals, respectively, on the right side of the EVB.
(Do **NOT** hot-plug Vin or increase Vin over the rated maximum supply voltage of 6V, or the part may be damaged.)
2. Connect the load between the Vout and GND terminals, respectively.
3. Connect the required measurement equipments, refer to Figure 1.
4. Turn on the power supply.
5. Measure Vin, Vout, Iin and Iout.

Adjustable Type

1. Select the shunt at JP4 for different output voltage.
IF the Vout required is not listed in the EVB, please see Output Programming section.
2. Connect the power supply to the Vin and GND terminals, respectively, on the right side of the EVB.
(Do **NOT** hot-plug Vin or increase Vin over the rated maximum supply voltage of 6V, or the part may be damaged.)
3. Connect the load between the Vout and GND terminals, respectively.
4. Connect the required measurement equipments, refer to Figure 1.
5. Turn on the power supply.
6. Measure Vin, Vout, Iin and Iout.

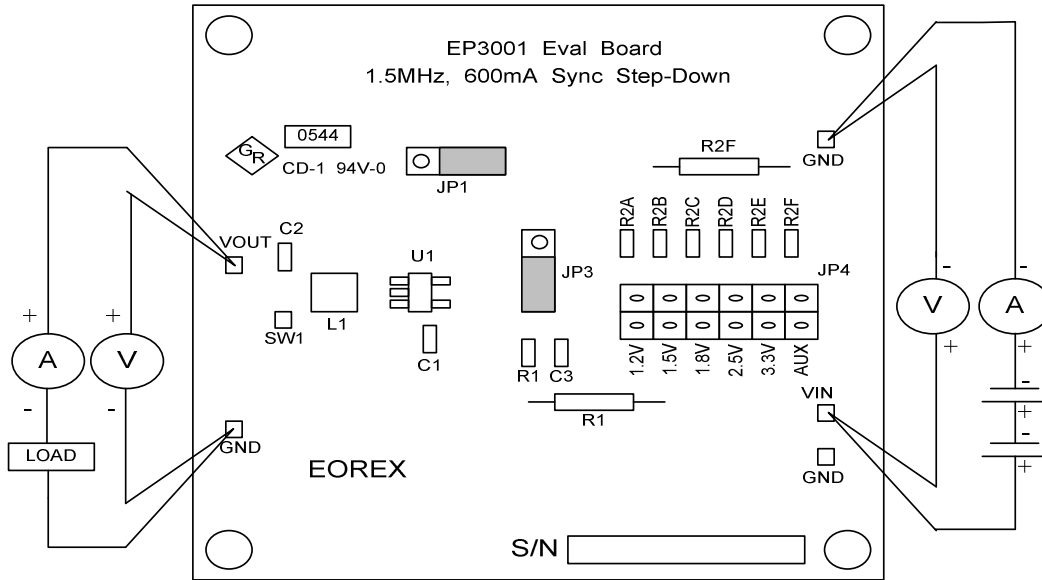


Figure 1 EP3001 Evaluation Board Diagram

Jump Setting

1. Default setting of JP1 is RUN, so as to enable the EP3001. If Shutdown condition is required, please turn off the power supply and switch JP1 to SHDN. Then power on to test the Shutdown condition. Do **NOT** keep JP1 floating at any time.
2. JP3 is for voltage option only. FIXED is for fixed voltage option with the marking of “A2YW”, “A3YW”, “A4YW” and “C4YW”. ADJ is for adjustable voltage option with the marking of “A1YW”. Do **NOT** change JP3 at any time.
3. JP4 is for output voltage selection for adjustable type. When AUX is selected, please see the following section.

Output Programming

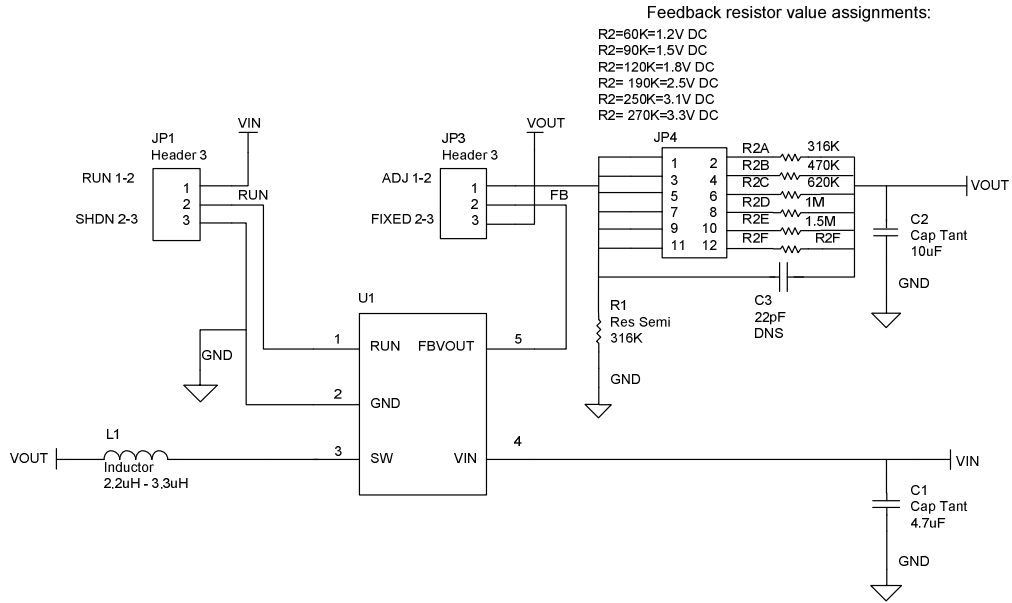
The output programming resistors for adjustable type are listed in Table 1. If AUX with JP4 is selected, please put on R2F according to the following equation:

$$V_{out} = 0.6V \left(1 + \frac{R2}{R1} \right)$$

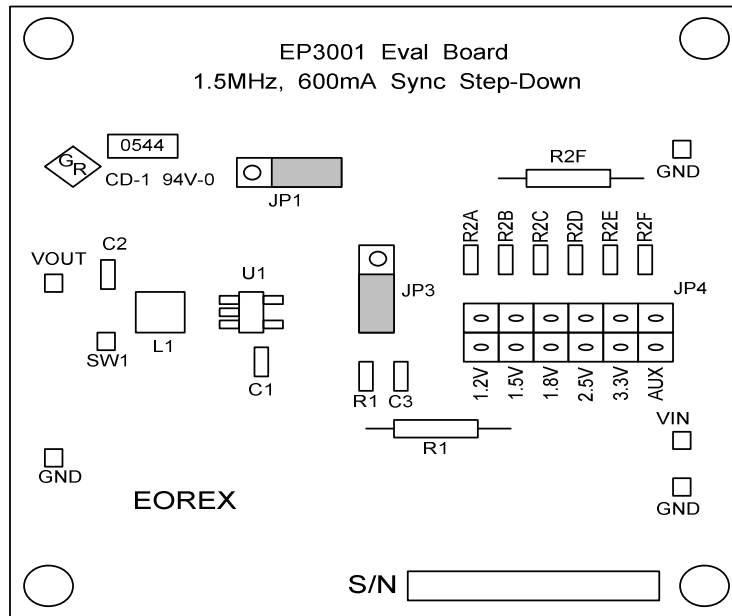
Table 1 Output Programming Resistor

| Vout (V) | R1 (KΩ) | R2 (KΩ) |
|----------|---------|----------------|
| 1.2 | 60 | R2A = 60 |
| 1.5 | 60 | R2B = 90 |
| 1.8 | 60 | R2C = 120 |
| 2.5 | 60 | R2D = 190 |
| 3.1 | 60 | R2 = 250 |
| 3.3 | 60 | R2E = 270 |
| AUX | 60 | R2F = Function |

DEMONSTRATION CIRCUIT



PCB LAYOUT



BILL OF MATERIAL

| Item | Qty | Ref. | Part Description | Manufacture/Part No. | Note |
|------|-----|------|--|---------------------------------|------|
| 1 | 1 | C1 | CAP.,X5R Ceramic, 4.7uF,6.3V,20%,0805 | MURATA,GRM31CR71A475KA01L | |
| 2 | 1 | C2 | CAP.,X5R, 10Uf,6.3V,20%,1206 | MURATA,GRM31CR70J106KA01L | |
| 3 | 1 | C3 | CAP.,NPO, 22Pf,25V,20%,0603 | GARRETT,0603CG220J9B20 | |
| 4 | 1 | L1 | INDUCTOR,2.2uH,20% | MURATA,LQH43CN2R2M03L | |
| 5 | 1 | R1 | RES.,CHIP,60K,1/16W, 1%,0603 | AAC | |
| 6 | 1 | R2A | RES.,CHIP,60K,1/16W, 1%,0603 | AAC | |
| 7 | 1 | R2B | RES.,CHIP,90K,1/16W, 5%,0603 | AAC | |
| 8 | 1 | R2C | RES.,CHIP,120K,1/16W, 5%,0603 | AAC | |
| 9 | 1 | R2D | RES.,CHIP,250K,1/16W, 5%,0603 | AAC | |
| 10 | 1 | R2E | RES.,CHIP,270K,1/16W, 5%,0603 | AAC | |
| 11 | 1 | U1 | IC,EP3001,SOT23-5 | A1YW, A2YW, A3YW, A4YW, C4YW | |